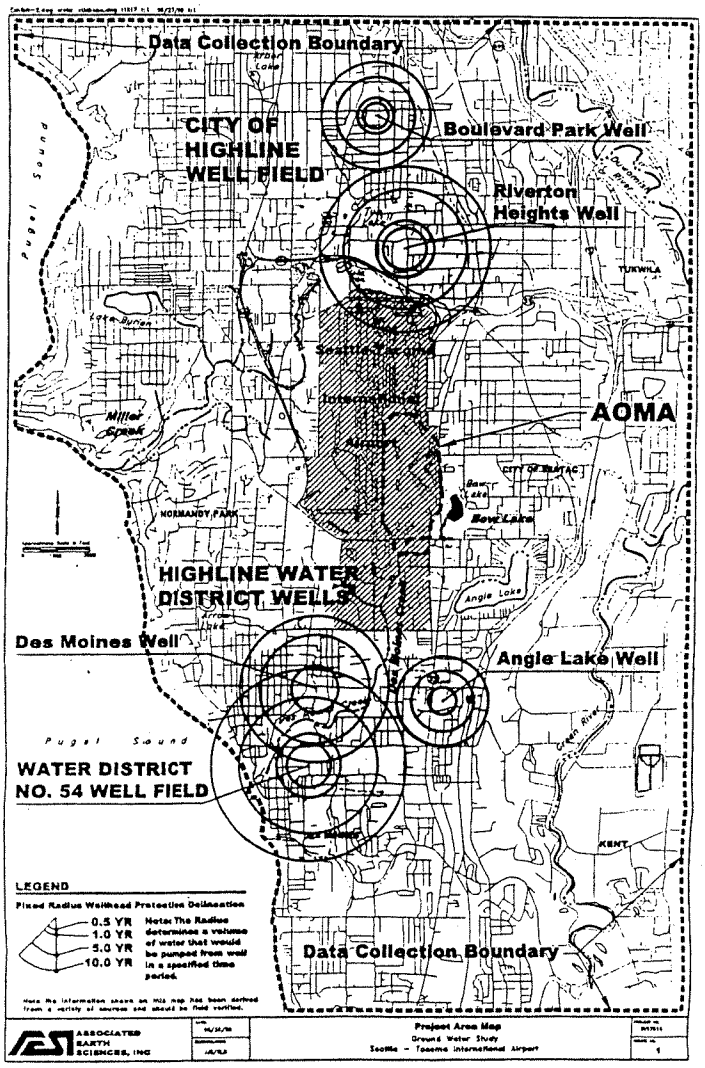
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Seattle-Tacoma International Airport Groundwater Study

Update: Groundwater study in progress

Ecology and Port sign MTCA Agreed Order

Under a legal agreement called an Agreed Order, the Department of Ecology (Ecology) and the Port of Seattle (Port) are conducting a comprehensive study of groundwater throughout the airport and surrounding region (an area of approximately 35 square miles).



Groundwater Study Area

The groundwater study is being conducted under the Model Toxic Control Act (MTCA), Washington's hazardous waste cleanup law. The study investigates groundwater contamination and is a remedial action under MTCA. Conducting this groundwater study is one condition the Port must meet to maintain state environmental certification of the airport expansion project.

Under the Agreed Order, the Port and Ecology are also conducting pollution prevention activities concerning airport underground storage tank and pipeline facilities to help prevent soil and groundwater contamination.

A draft Agreed Order was previously submitted for public comment. Some changes were made to the draft Agreed Order for clarification and to reflect new technical information. The final Agreed Order was signed by Ecology and the Port, effective May 25th.

Background

The shallow unconfined aquifer (known as the Qva Aquifer) beneath portions of the airport is known to contain contaminants. The contaminants originated from airport operations within the southeast quadrant of the airport (identified as the aircraft operations and maintenance area--AOMA--in the Agreed Order). Contaminants were released into the subsurface primarily by leaks from underground storage tanks and fuel distribution piping.

At some locations, the contaminants moved vertically down through geological material and affected the Qva Aquifer. The known contamination in the Qva Aquifer consists mostly of jet fuel, but gasoline and components of industrial solvents have also been detected. Independent cleanup actions are in progress at the individual contaminated sites.

Purpose of the study

The purpose of the groundwater study is to determine if the known contamination in the Qva Aquifer and also any currently undiscovered contamination in the Qva Aquifer from historical airport operations could move outside the airport and impact drinking water supply wells or surface water bodies in the area.

Study to be conducted in two phases

The groundwater study will be accomplished in two phases. The first phase, currently underway, includes (1) research and data compilation, (2) data entry and database development, (3) development of a conceptual model of groundwater flow for the airport and surrounding regional area, (4) development of a computer model that represents the conceptual model of groundwater flow, and (5) development of a contaminant transport model that simulates the movement of contamination in the groundwater.

Groundwater and contaminant modeling is commonly used standard technology, and it is an essential tool to identify the potential risk of the contamination in the Qva Aquifer reaching public and private drinking water supply wells and nearby surface water bodies outside the airport: Bow Lake, Des Moines Creek and Miller Creek.

The second phase of the study will include work to conduct additional investigation activities. These activities will include drilling groundwater-monitoring wells that will be used to verify Phase I modeling results and also to perform additional groundwater characterization and/or monitoring activities as needed.

What has happened so far

A comprehensive environmental and hydrogeological database for Sea-Tac Airport and the surrounding project study area has been established. The database includes available hydrogeological, stratigraphic, geochemical, and groundwater level data throughout an area extending from the Boulevard Park area to the north through the City of Des Moines to the south; and from Puget Sound to the west and to the Green and Duwamish River valleys to the east.

Data entry is complete and database development is in progress. The geochemical data alone consists of about 45,000 laboratory results in the database. A total of 955 well logs were analyzed to compile the database. The bibliography of the database contains about 500 references.

Stratigraphic analyses and construction of hydrogeological cross sections that transect the groundwater study area are in progress. A preliminary conceptual groundwater flow model has been developed.

What happens next

A report on the results and findings of Phase I actions of the groundwater study along with an Addendum to the Agreed Order describing proposed Phase II actions will be made available for public review and comment. A response to comments on the draft Agreed Order, called a Responsiveness Summary, will be completed before the Phase I study report and Addendum are issued.

Separate study on third runway

Work will begin this winter on a separate study of how construction of the proposed third runway at Sea-Tac Airport will affect groundwater, creeks and wetlands in the area. This study ordered by the 1999 Legislature, will likely review and use some of the data in the MTCA groundwater study, but the third runway study is a separate study and will be conducted independently of the existing MTCA groundwater study.

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